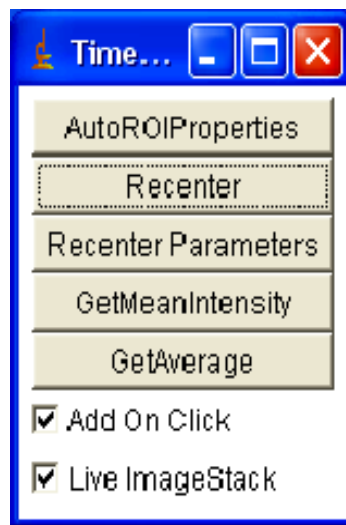


Time Series PlugIn:

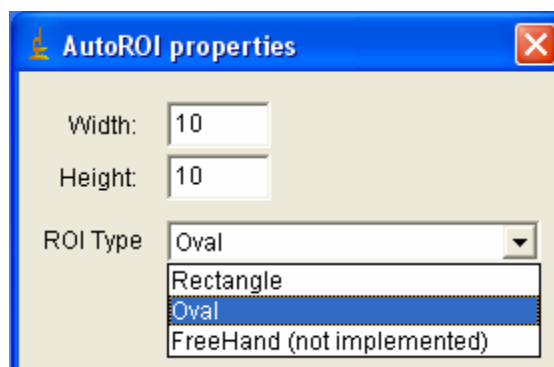
Version: 4_2H

Time Series Plugin can be used for analyzing 2D time-lapse images or stacks. This plugin can be used to add a predefined ROI (Auto ROI) through mouse clicks. Just click on the object about which you want to define a ROI, an ROI is added on the image and in ROI Manager. The plugin opens a Time Series window and ImageJ's own ROI Manager (if it is not open already). Following is the screen shot of the plugin window.



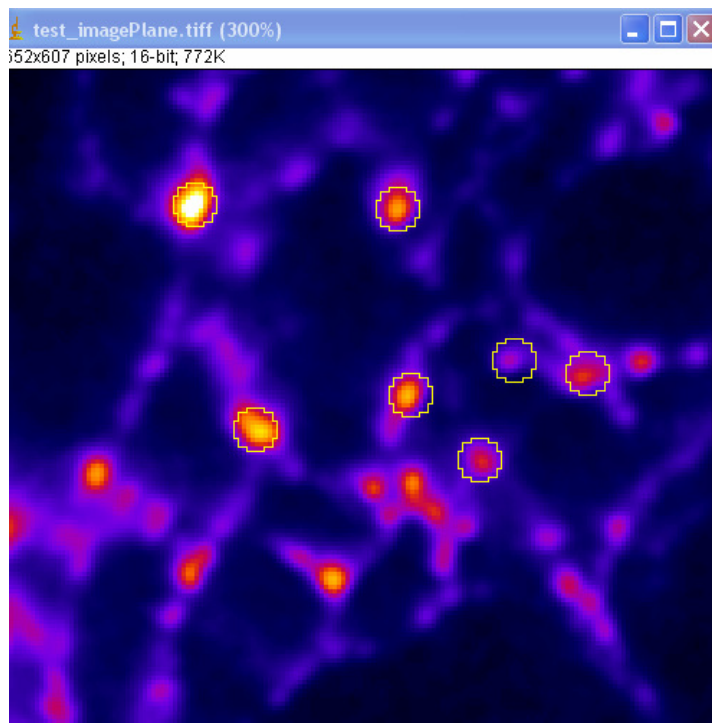
Auto ROI properties:

This button allows you to set the properties of the AutoROI (the ROI that you want to add on a mouse click). This opens another dialog box having intuitive controls to define ROI parameters such as width and height of the ROI and shape of the ROI. At present only Oval and Rectangle are implemented.



Recenter:

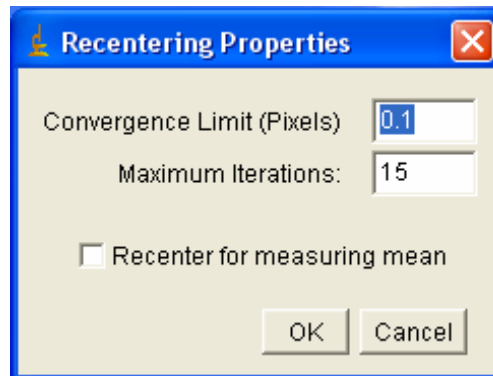
The ROI's in the roi manager can be re positioned so that the geometric center of the ROI coincides with the center of mass of the object(s) of interest. This is done in an iterative manner. It measures the centroid and center of mass of the ROI and repositions the ROI to the previously measured center of mass. This is done until one of this two conditions are satisfied, a) Difference between the ROi center (measured as centroid) and center of mass reaches a limit set by the user b) or number of iterations reaches a maximum limit set by the user. Both these properties are set using the “Recenter Parameters” button. The following screen shot shows the re-centered oval ROI's in an image,



In the current version the re positioning accuracy is about a pixel. Limit in accuracy is due to rounding off the co-ordinates to nearest integers. In a later version I am hoping to do a local linear interpolation and improve on the accuracy.

Recenter Parameters:

This button opens the following dialog box. It can be used to set the re-centering options discussed above.



The check box “Recenter for measuring mean” is to tell the plugin whether to use the re-centering option when you measure the mean intensity trace. Right now this option is available if you are measuring the time trace data (using a button GetAverage) without updating the Stack Window.

Get Mean Intensity:

No function associated with it in the current version.

Get Average:

This button allows the user to calculate the time trace data for the individual ROI's listed/selected in the ROI Manager. Not selecting any ROI's in the list selects all the ROI's. The time trace data is displayed as a series of columns in results table such that each column represent different ROIs and row represent the slice number. The last two columns in the results table are the average and standard deviation over all the ROIs. This average is also displayed as a graph in a separate plot window called “Time Trace(s)”. The headings of the columns are the names of the ROI's as listed in the ROI Manager. Note: 1) If you want to see the stack run through when the time trace is calculated keep the “Image Stack” option clicked. This forces the plugin to calculate the trace in a separate thread.

2) If you want to re-center the roi's on every slice while measuring the time trace then you should check the “Recenter for measuring mean” check box in the re-center parameters dialog box. Further current version does re-centering only in non-live mode, i.e. only if you leave the “Live Stack” option unchecked.

Add On Click:

This check box allows the user to toggle the option of adding the AutoROI's on mouse click on and off. The added ROI's are named serially in the ROIManager list. Current version does not keep track of deletion or addition of ROI for naming. Any existing ROI's with the same name are replaced with new.

Note: This plugin leaves all the other tools selection unchanged. For instance, if you have clicked on zoom tool and leave this checked, then every click will not only draw an ROI but will also zoom the image. So make sure you have unused tools selected or one of the selections such as rectangle or oval or line tool selected.

Live ImageStack:

This option allows user to choose between updating and not updating the image stack while calculating time trace. In the current version this option together with "Recenter for measuring mean" option in "Recenter Properties" determines re-centering option during time trace measurement.